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THE WEATHER OF 1946 IN THE UNITED STATES

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The outstanding climatic feature of 1946, with reference to agriculture, was the generally favorable influence of the year's weather on the production of the greatest total output of crops in the Nation's history. This favorable influence was noteworthy principally for the record yields of wheat, corn, potatoes, and soybeans it helped produce at a time when war-devastated Europe and Asia were in large measure dependent upon the United States for subsistence. On the darker side, however, wet weather in the heart of the Cotton Belt, accompanied by an infestation of boll weevil, resulted in a disappointingly low production of cotton; and frequent rains and high humidity in the East during part of the growing season promoted the development of the tomato blight, with serious reductions in the crop yield.

Usually warm conditions during the first part of the year, especially during March, caused vegetation to advance 2 to 4 weeks ahead of normal schedule over the entire country except the Pacific Coast States. April weather permitted unusual progress in spring work and seeding grains, but some crops were set back and fruits damaged by widespread frosts in the western North-Central States during this month and the following, especially. Late May and June conditions were quite favorable in the Corn Belt, though the Ohio Valley and other districts experienced frequent heavy rains which retarded planting and cultivation. Though July weather brought a general improvement, unfavorable dryness became evident in sections of North Dakota and Minnesota, the central and southern Great Plains, parts of the southern Great Lakes region, and in the far Southwest. Rains near the end of summer finally relieved these areas. In general, summer and fall were favorable for crop maturing and harvesting over most of the country.

Preliminary estimates of loss of life and property due to severe 1946 storms are as follows: Tornadoes, 77 killed and $12,574,000 damage; hurricanes, no deaths and $10,000,000 damage; other violent windstorms, rainstorms, and hailstorms, 53 killed and over $50,000,000 damage.

Temperatures.—The mean temperature for the year, derived by weighting the average temperatures of the several States according to their areas, was 54.2°, or 1.0° above the average for the period 1886 to 1946. During that period the highest mean annual temperature for the United States was 55.4° in 1934, and the lowest, 51.3°, in 1917.

Monthly and annual State temperature departures are shown in table 1, supplemented by a chart of the annual areal distribution of temperature.

Temperatures during 1946 averaged higher than usual over practically the entire country, with the exception of California and Oregon. The annual departures from normal exceeded +2 degrees quite generally in the central Great Plains, middle Mississippi and lower Ohio Valleys, and Great Lakes region.

The highest State yearly average was 72.4°, for Florida; the lowest, 40.8° for North Dakota. The greatest monthly average was 83.6° for Oklahoma in July, followed by Texas with 83.5° for August; while the lowest was the February average of 10.4° for North Dakota. The highest temperature recorded during the year was 123°, observed at Cow Creek, Calif., on August 2; and the lowest was −49° at two stations in Minnesota on December 31. For comparison, the highest temperature ever recorded in the United States was 134° at Greenland Ranch, Death Valley, Calif., on July 10, 1913; and the lowest, −66° at Riverside Ranger Station, Wyo., on February 9, 1933.

Precipitation.—The average annual precipitation for the country as a whole, based on weighted averages, was 30.90 inches, 1.73 inches more than the average for the period 1886 to 1946. During the period the wettest year had been 1945, with 32.89 inches, and the driest, 1910, with 24.65 inches.

Figure 1 gives the percentages of normal precipitation by States for 1946; figure 2, the percentages for the growing season; table 2, the percentages by month and for the year; and table 3, the monthly and annual amounts. The areal distribution of annual precipitation is shown in percentages on the chart.

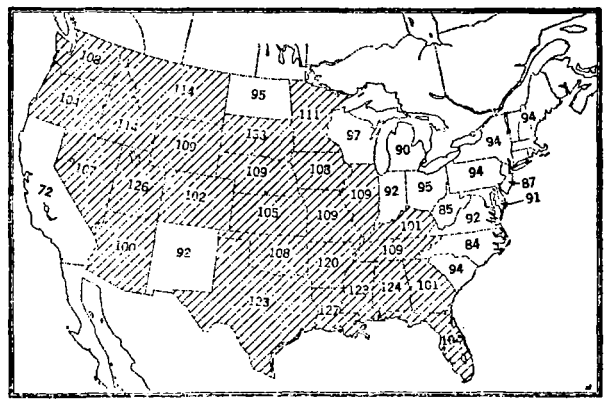


FIGURE 1.—Percentage of normal precipitation, 1946. (Shaded States normal or above.)

[1] The writer is greatly indebted to Weather Bureau officials in the field, especially the section directors, and to many cooperating individuals and agencies, such as the Bureau of Agricultural Economics, whose reports assisted in making this article possible.

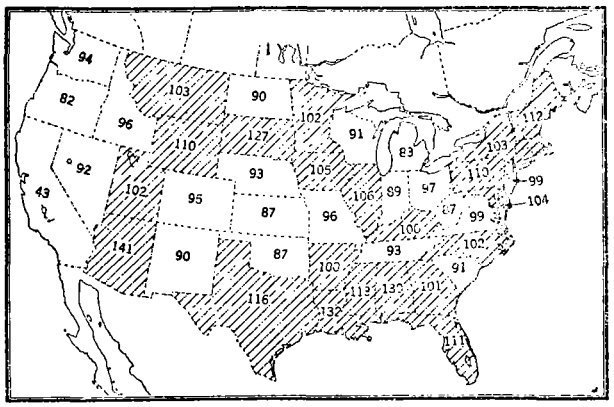


FIGURE 2.—Percentage of normal precipitation, April 1–September 30, 1946. (Shaded States normal or above.)

The year 1946 was wetter than usual from the Gulf States to eastern Missouri and Illinois; in most northern sections from the upper Mississippi Valley to Idaho; and in the central portion of the western Plains, eastern Colorado, western Washington, and most of Arizona. Precipitation was rather scant in northern California, northern North Dakota, southeastern Kansas, and northeastern Oklahoma. In the middle and southern Great Lakes region, the middle Ohio Valley, and north Atlantic coastal areas, conditions were generally quite dry.

The average annual precipitation for most of the various States fell within 10 percent of the usual amounts, though it ranged from 71 percent for California to 133 percent for South Dakota. States receiving an average of over 50 inches of precipitation during 1946 were Louisiana, Alabama, Arkansas, Florida, Georgia, Mississippi, and Tennessee. The wettest State was Louisiana, with an average annual precipitation of 71.60 inches; the driest State was Nevada with 9.71 inches. Louisiana is normally the wettest State and Nevada the driest.

Average State precipitation during the April to September growing season exceeded the normal values by more than 15 percent in Louisiana, Alabama, Texas, Arizona, and South Dakota. Conversely, deficiencies greater than 15 percent were recorded in Michigan, Oregon, and California; elsewhere, average State deviations were less than one-seventh of the usual seasonal totals. Precipitation during the growing seasons ranged from 43 percent of normal in California to 132 percent in Louisiana.

January.—This month, as a whole, was milder than usual over practically the entire country, the principal exceptions being Maine, southern Texas, and southern New Mexico. The plus anomalies ranged from about 2 degrees on the Atlantic and Pacific coasts to 13 degrees in north-central Montana. There were, however, several severe cold periods. Freezing conditions extended southeastward to the Okeechobee region of Florida on the mornings of the 2d and 19th but caused little damage. A sharp southeastward surge of Arctic air, which caused the temperatures at Pembina, N. Dak., to drop from 14° above zero to 16° below zero in 6 hours on the 25th, overspread the eastern two-thirds of the country, bringing zero temperatures to the Ohio Valley and freezing temperatures to the Rio Grande Valley and Florida on the 26th.

Precipitation was heavy to excessive over an area extending from the Gulf northward almost to the Ohio Valley, and in districts along the middle and north Pacific Coast. Scanty amounts fell in the western Plains, most of the Rocky Mountain States, and the Great Basin. It was the second wettest January of record in Louisiana and the third wettest in Mississippi.

Damaging floods occurred in the southern States, particularly Kentucky, Tennessee, and Georgia, while the greatest winter floods of record were reported from Iowa, southern Minnesota, and Wisconsin. A severe sleet storm occurred over the eastern Piedmont region of North Carolina on the 16th and 17th, with depths up to 10 inches. The first tornadoes of the year struck northeastern Texas on the 4th, killing 30 persons, injuring 335 others, and destroying $2,650,000 worth of property. Dust storms in the western portions of Nebraska, Kansas, and Oklahoma were quite severe on the 23d.

The unusual phenomenon of "snow rollers," masses of snow blown by the wind into rolls, ranging up to 2 feet in diameter, were produced by high wind and snow of suitable texture in the Avon and Silver Springs areas of New York on the 18th and 19th, and at Linesville, Pa., on the 25th.

February.—This month also averaged considerably warmer than usual, except in the far Northeast, northern Minnesota, eastern North Dakota, California, and some other areas. Monthly mean temperatures exceeded their normals by more than 10 degrees in the central Great Plains and north-central Montana. It was the second mildest February in the climatological history of Kansas.

The outstanding feature of the month's weather in the northern Plains States was the glaze, sleet, snow, and windstorm of the 5th and 6th, which assumed blizzard proportions in many areas as far south as Nebraska. This storm was the most severe of record in the Moorhead-Fargo area of the Red River Valley. West-bound trains were stalled at Fargo for almost 3 days, and in some sections drifts were 18 feet high. Duststorms in the western Plains from the Texas Panhandle to western Nebraska, in connection with this storm's circulation, reduced visibility to practically zero on the 5th in some areas and reminded "old timers" of the severe dust storms during the drought years of the '30's. Damage to wheat and topsoil, however, was not severe. A cold wave caused the temperature in Ohio and Pennsylvania to drop sharply from the highest for the month on the 14th to the lowest on the 15th, a drop of 50° at many stations within 24 hours.

Heavy precipitation continued in the Pacific States and from east Texas and the Gulf to the Ohio Valley, with generally light amounts in the Great Plains, Rocky Mountain States, Southwest, and Great Basin. This was the driest February of record in Colorado, and the second driest in New Mexico. The heaviest snow of the season fell in the Northeast on the 19th and 20th. Run-off was excessive over the South-Central States, and floods were quite general in the southern States, in some places exceeding those that occurred during January.

A tornado struck Ardmore, Okla., at 3 a. m., of the 13th, killing 1 person, injuring 15 others, and causing $1,000,000 property damage. Possibly one of the strongest earthquakes in the history of the Northwest was felt over most of Washington State and northwestern Oregon at 7:18 p. m., on the 14th. It caused considerable damage in the Seattle area, but no loss of life. A second shock at 4:16 a. m., on the 15th was much milder. The center of the quake is believed to have been in the Olympic Mountains of Washington.

March.—March of 1946 resembled in many respects the unusually warm March of the preceding year. Mean temperatures for the month were generally 12–15 degrees above their usual values in a large north-central area, extending from central Montana to eastern New York, and southward to Missouri and Kentucky. Only in sections of the Pacific States and a few adjacent areas were the averages near normal. This was the warmest March of record in Illinois, Indiana, Ohio, New York, and New

England, and the second mildest in Michigan, Minnesota, Iowa, Missouri, Nebraska, North Dakota, Montana, and Wyoming. The first 3 months of the year were the warmest for any similar period in the climatic history of Kansas, Nebraska, Montana, and some other areas.

New high temperature records for the month were established at a number of stations, especially during the last 5 days, as afternoon maxima ranged from around 100° in Texas to near 80° along the Canadian border. Vegetation was advanced by about 3 weeks in most sections east of the Rocky Mountains, with peach trees blooming nearly to the Great Lakes region and many apple orchards in bloom as far north as the Ohio Valley at the close of the month.

The weather continued wetter than usual over a region extending from east Texas, the Gulf Coast, and northern Florida to the middle Ohio Valley, with the rainfall greatest in the east-central Gulf Plains. Amounts were also heavy in the Pacific States, Nevada, Nebraska, Iowa, and other areas. It was the wettest March of record in Iowa. The winter drought in California was relieved by rains coming after the first 10 days of the month. Dry sections of the western Plains were also benefited, but the Southwest and many parts of the Northeast still needed additional moisture.

Heavy snow cover in the northern States from the Mississippi Valley to Maine was melted by the unusually warm weather with only minor local flooding, due to deficient precipitation over the critical areas.

The Aurora Borealis, or northern lights, was unusually active from the 23d to the 28th.

April.—Mostly warm weather continued over practically the entire country, the averages being slightly below normal only in New England and Washington State. Plus anomalies exceeded 8 degrees in the western Plains and eastern Rockies. It was the warmest April of record in Nebraska and New Mexico, and the second warmest in Arizona and Wyoming. This warm weather persisting from the first of the year made the 4-month period the mildest ever recorded in many north-central areas, notably in Illinois, Missouri, and Kansas.

Cold polar air brought freezing temperatures southward to the Ohio Valley, with frosts reaching to the northern portion of the Gulf States and the central Carolinas from the 11th to the 13th. Frosts were again experienced, but not quite so far south, on the 27th and 28th. Tender vegetables and fruit suffered from the Rockies to the Northeastern and Middle Atlantic States, but commercial orchards in general were not damaged severely, as they were the preceding year, so it was possible for bumper fruit crops to be gathered in many areas.

Precipitation was below normal during April over most of the country, with large sections receiving less than half of the usual amount. It was somewhat wetter than usual in the far Northeast, eastern South Carolina, southern Texas, Arkansas, southern Missouri, and extreme western Washington. This was the driest April of record in Wisconsin, Michigan, Pennsylvania, and northern Ohio, and the second driest in Montana and Wyoming. Near-drought conditions were developing in most northern and western sections of the country.

Between 4:30 and 8 p. m., of the 7th, a thunderstorm, moving southeastward from Tennessee and accompanied by considerable hail and wind, caused $2,000,000 damage over a path 20 miles wide and 150 miles long in northern Alabama. Floods in the Yazoo and Big Black Basins of Mississippi overflowed 1,250,000 acres, of which 300,000 were arable land. A considerable area was free of water in time for planting. Damage was estimated at $3,000,000.

May.—In marked contrast to the preceding months, May weather was much cooler than usual, except along the Atlantic and Gulf Coasts and in the region west of the Continental Divide. The monthly departures ranged from more than 4 degrees below normal in the central portion of the Great Plains to 4 degrees above normal in Washington and Oregon. On the 1st, a severe freeze in the Rocky Mountain region, the Great Plains, and areas to the east established new minimum temperature records for the month at many stations in Utah. Between the 8th and 13th, polar air again overspread the greater portion of the country east of the Pacific States, bringing freezing temperatures to northern Missouri and nearly to the Texas Panhandle on the 11th and 12th and to the lower Lake region and Northeast by the 13th. Many stations in the North-Central Border States reported the lowest temperatures ever recorded for so late in the season. Moderate to considerable damage was suffered by early truck produce, fruits, sugarbeets, and some spring grains, especially flax, in north-central areas.

May was considerably wetter than usual over the eastern portion of the country and in Nebraska, South Dakota, and north-central Rocky Mountain areas. Drought conditions continued in the far Southwest. Rain was unusually heavy in the Gulf States, from eastern Texas to the lower Ohio Valley, between eastern Virginia and southern New York, and in western South Dakota. It was the second wettest May of record in Louisiana, Virginia, Maryland, and Pennsylvania. Persistent heavy showers, especially on the 26th and 27th, following the driest April of record in Pennsylvania, produced record-breaking floods on many of the headwater tributaries of the Susquehanna River. They caused the death of 12 people and destroyed millions of dollars worth of property.

A hailstorm near Grand Junction, Colo., on the afternoon of the 10th, left $1,000,000 damage in its wake, mostly to fruit and vegetables. Another hailstorm, between 9 and 10 p. m. of the 16th, injured 20 people and caused over $5,000,000 property loss in San Antonio, Tex., and about $30,000 crop loss adjacent to that city. In this storm the hailstones that covered the ground ranged in size from walnuts to some as large as baseballs. Hailstones destroyed $576,000 worth of property in other parts of Texas on the same date. About 6:30 p. m. on the 29th, San Antonio was again struck by bad weather: this time, strong winds associated with a violent thunderstorm, destroyed property valued at $1,350,000 in and near the city.

June.—Unseasonably cold weather prevailed over the greater portion of the country during the first few days of the month, with freezing temperatures and light snows in the Northern Border States. By the 10th, however, afternoon temperatures had risen to 100° as far north as South Dakota, where 110° was recorded on the 23d. Averages for the month were generally a few degrees above the usual values in the western Plains, middle Rockies, and the far Southwest, and mostly near normal elsewhere.

Most sections received ample moisture during June, the principal exception being the region from the middle and southern Rockies to the California coast. Amounts were excessive in the Gulf Coastal Plain, including Florida and Georgia, and in sections of the Great Lakes region and the upper Mississippi Valley. A torrential rainfall of 11.72 inches at Mellen, Wis., on the 24th, set a new all-time 24-hour record for that State. Severe flash floods in the Bad and White River basins of Wisconsin caused $3,000,000 damage. The States of Ohio, West Virginia, and Pennsylvania reported flood losses of

over a million dollars each, and eight deaths in the latter State.

Thunderstorm winds reached an estimated velocity of 75 miles per hour during the worst windstorm in the history of Auburn, N. Y., where damage was estimated at $1,000,000. A tornado struck Detroit on the 17th and another one on the 27th, resulting in 44 injuries and $1,500,000, property damage. The first of these tornadoes killed 15 persons and injured 49 others on the Canadian side.

July.—The month was typically hot over the western two-thirds of the country, with the plus anomalies exceeding 4 degrees in most sections of the western Plains and some northern Rocky Mountain areas. Temperatures were mostly moderate in the Atlantic and Middle and East Gulf States. Cool weather overspread the Northeast on the 16th and 17th, and brought the lowest temperatures ever recorded during July at a number of stations in New England.

Most of the central third of the country was dry during July. Precipitation ranged from 6 inches to more than 15 inches in most sections of the south Atlantic and middle and east Gulf Coastal Plains.

Approximately 110 severe local storms occurred during July, accounting for 10 deaths and property damages amounting to over $7,500,000. Heavy hail on the 2d caused $1,250,000 damage in Cheyenne County, Kans., mostly to wheat ready for harvest. A severe hailstorm did $1,000,000 damage in McCone County, Mont., on the 16th. Lightning set fire to and destroyed a textile mill and contents valued at considerably over $2,000,000, on the 4th near Langley, S. C.

August.—The eastern and north-central portions of the country were somewhat cooler and the far West and Southwest much warmer than usual, with the departures ranging from more than 3 degrees below normal in the Ohio Valley to about the same amount above in the Great Basin. It was the coolest August of record in Kentucky and the second coolest in Pennsylvania and West Virginia. A southward surge of cold polar air at the end of the month brought the lowest temperatures ever recorded in August to many eastern stations as far south as Tennessee and North Carolina.

Rainfall was spotty, but locally heavy to excessive in Atlantic and Gulf Coastal areas, Arizona, and many central States, especially in the Missouri-southern Illinois area. It was dry in the Pacific States and across the northern third of the country, except in New England where more rain occurred at several stations in eastern Massachusetts and Rhode Island than ever before during August. A total of 21.71 inches fell at East St. Louis, which was the greatest amount of rainfall ever recorded at any station during any month in Illinois. A similar new all-time record for 109 years was established in St. Louis by an August total of 20.45 inches. A total of 11.00 inches was measured for a 24-hour period at Nashville, Ill., on the 15th and 16th. Floods caused the loss of several lives and $8,258,000 worth of property damage in southern Illinois. Lightning struck the tanker *Homestead* at Jacksonville, Fla., on the 5th, causing a $2,000,000 fire loss. On the 26th the farmers of Rockingham, Guilford, and Orange Counties, N. C., suffered a hail loss of almost a million dollars, with hail 1½ inches deep in some areas.

September.—This month was somewhat warmer than usual over the Northeast and far Southwest, including California, while minus departures ranged from 1 degree to about 3 degrees below normal in the east-central Gulf States; elsewhere, temperatures generally averaged near-normal.

Precipitation was heavy in the upper Mississippi Valley, western Plains, Arizona, northern Rockies, and sections of the Atlantic States. It was especially heavy in the Gulf Coastal Plains. Very heavy rainfall, estimated at about 11.50 inches, fell in the vicinity of San Antonio, Tex., from the 25th to the 27th, causing the greatest flood the area had experienced since September 1921. Several lives were lost and property damage amounted to millions. A series of thundersqualls swept over west-central Minnesota on the 5th, causing one death and $900,000 damage to farm installations, crops, and livestock. At Butte, Mont., a record-breaking September snowfall of 6.5 inches in 24 hours on the 16th and 17th damaged transmission lines and trees.

October.—Warmer-than-usual weather prevailed over the eastern half of the country and the southern Plains, including all of Texas, while it was generally cold for the month elsewhere. The monthly departures ranged from more than 6 degrees above normal in the lower Great Lakes region to about 5 degrees below in eastern Oregon. This October equalled the coldest October of record in Oregon and was the second coldest in Washington and Idaho. A persistent southwesterly flow of warm air caused record-breaking temperatures to be recorded at many stations situated east of the Mississippi River during the last 4 days of the month. At the same time, cold northerly currents over the far West established many new low October temperature marks for the region, with some of the earliest killing frosts of record experienced over the northern two-thirds of California.

The month was generally wetter than usual, except in the Gulf States, most of the Ohio Valley, and the Middle Atlantic States. It was the wettest October in the climatic history of Nebraska, South Dakota, Montana, and western Kansas, and the second wettest October in Wyoming. Idaho precipitation equalled the record for the month. In contrast to the scanty snowfall that fell during October of the preceding year, snows were frequent and extensive across the northern States and in the Rocky Mountains. An unseasonably early snowstorm occurred over northern New York and northwestern New England, with depths ranging up to about 2 feet. Some stations in this area reported the greatest snowfall for any October of record, notably Canton, N. Y., with 11 inches.

A hurricane which had been reported as severe in the Gulf quickly lost its force a few hours before striking the Tampa Bay area of Florida. It moved northward over that State on the 7th and 8th, and thence across Georgia and the Carolinas, to pass out to sea over the North Carolina coast without causing much damage. The potential damage, especially to the prospective record-breaking citrus crops, was so great that the actual damage, probably about 2 percent, or approximately $5,000,000 seemed very small. Other property damage totaled about $200,000. The advisories issued by the Weather Bureau Forecast Center at Miami were very accurate and timely.

November.—Unseasonably warm weather continued over most of the eastern half of the country and rather cold weather over the West. The average temperatures ranged from more than 6 degrees above normal in the South Atlantic and East Gulf States to about the same amount below the usual in north-central Montana. It was the warmest November of record in Florida and Georgia; equalled the record November average for Alabama; and was the second warmest November in North

Carolina. The highest temperatures ever recorded during November were reported during the first few days of the month from eastern States, notably Pennsylvania and North Carolina. A cold wave established new low temperature records for November at a number of stations in Montana on the 21st and brought killing frost southward to the central part of Mississippi by the 23d.

November was much wetter than usual from central Illinois and southern Missouri southward over the lower Mississippi Valley and eastern Texas. Precipitation was also generally above normal from the central Great Plains westward.

On November 1, a minor tropical disturbance entered Florida near Palm Beach and on the 3d drifted out into the Atlantic off Jacksonville, after causing some small crop damage by reason of its heavy rains.

The most protracted snowfall in the climatic history of eastern Colorado, and the second heaviest fall of record for that area, occurred from the 2d to the 6th. Snow fell for 71 hours and 14 minutes without interruption in Denver, amounting to 31 inches. Thirteen deaths and a $10,000,000 economic loss were attributed to this storm. Food and supplies were dropped by plane or taken to isolated homes, as well as to stranded herds of livestock, by dogsled or Army "weasels". Drifts ranged up to 12 feet.

Excessive rains in Beaumont, Tex., and vicinity on the 3d and 4th caused flooding and damage estimated at $3,000,000, principally to business houses and homes in the city.

December.—This month averaged much warmer than usual over practically the entire country, the exceptions mostly being near-normal areas in northern border districts and Pacific coastal areas. The plus anomalies exceeded 5 degrees quite generally from the middle Atlantic Coast westward over the middle portion of the country almost to the Pacific States, with many stations in Colorado, southwestern Wyoming, and adjoining sections reporting monthly departures of over 8 degrees above normal. Unseasonably warm weather was displaced by an outbreak of cold polar air near the end of the year. The change was quite sharp, for instance, in Missouri, where the temperature dropped from near record-breaking readings in the middle 70's on the 27th to 7 degrees below zero by the morning of the 30th. Freezing temperatures were recorded as far south as Brownsville, Tex., on the 31st, and vegetables suffered some damage in west Gulf areas and the far Southwest.

Precipitation was heavy in north-central Texas, eastern Oklahoma, southern Missouri, Wyoming, and some adjacent areas; while less than half the usual amounts fell in the Southeast, the middle portion of the Western Plains, most of Colorado, Arizona, northern New Mexico, eastern Washington, and eastern Oregon, and sections of northern California. Drought conditions were developing in Florida and southeastern Georgia as the year closed.

TABLE 1.—*Monthly and annual temperature departures from normal for the year 1946*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	+1.9	+2.3	+5.4	+3.5	−0.5	−1.7	−0.9	−1.4	−2.3	+0.4	+6.5	+4.4	+1.5
Arizona	−0.9	−2.0	+0.6	+4.8	+0.2	+2.4	−0.2	+0.6	+1.3	−3.2	−3.4	+3.5	+0.3
Arkansas	−0.1	+3.9	+5.5	+3.4	−2.7	−1.5	+0.3	−1.1	−1.9	+0.9	+2.2	+5.5	+1.2
California	−0.5	−3.2	−1.4	+1.2	−0.4	−1.1	−0.5	+0.4	+0.8	−3.8	−3.9	+0.2	−1.0
Colorado	+0.4	+1.9	+4.0	+6.0	−2.4	+1.7	+1.5	−0.2	+0.7	−3.8	−4.1	+5.5	+0.9
Florida	+1.8	+1.2	+1.9	+1.5	+1.2	−0.7	−0.1	−0.1	−0.3	+1.1	+6.1	+4.2	+1.5
Georgia	+1.5	+2.0	+4.4	+2.0	−1.0	−1.6	−1.0	−1.1	−2.4	−0.7	+6.0	+3.6	+1.0
Idaho	+0.2	−0.6	+2.3	+2.3	−0.3	−0.4	+0.5	+0.5	−1.2	−5.7	−1.8	+4.6	0.0
Illinois	+2.5	+4.7	+11.6	+3.5	−2.8	+0.1	−0.2	−3.8	−0.9	+3.9	+3.1	+5.5	+2.2
Indiana	+1.8	+3.9	+11.8	+2.3	−2.3	−0.2	−0.6	−4.0	−0.4	+4.2	+4.3	+4.6	+2.1
Iowa	+4.0	+6.2	+12.2	+5.1	−3.6	+0.2	−0.8	−3.3	−0.7	+3.9	+1.7	+5.3	+2.5
Kansas	+4.4	+8.5	+8.9	+5.6	−3.3	+2.0	+2.1	−0.2	−0.8	+1.1	−0.4	+5.6	+2.8
Kentucky	+1.2	+3.6	+9.5	+3.4	−1.8	−0.8	−1.0	−5.1	−2.0	+1.2	+4.7	+4.6	+1.4
Louisiana	−0.3	+1.1	+2.2	+2.7	−0.4	−1.8	−0.6	−0.6	−0.9	+1.0	+3.9	+3.6	+0.8
Maryland-Delaware	+2.1	+3.6	+7.6	−0.1	−0.3	−1.2	−1.3	−3.4	+0.3	+3.2	+4.4	+2.6	+1.4
Michigan	+2.2	+0.4	+11.6	+1.9	−2.0	−1.2	−0.1	−2.2	+0.6	+4.8	+2.8	+1.2	+1.7
Minnesota	+1.6	−0.6	+10.8	+4.5	−2.8	−0.6	+0.1	−2.0	−1.9	+0.1	−0.4	−0.2	+0.7
Mississippi	+0.1	+2.1	+4.1	+3.0	−1.5	−1.8	−1.1	−0.7	−1.5	+0.5	+4.9	+3.8	+1.0
Missouri	+2.9	+7.4	+11.1	+4.3	−3.1	+0.3	+0.8	−2.5	−1.4	+3.3	+2.5	+6.0	+2.6
Montana	+5.6	+4.2	+7.1	+4.2	−1.8	−0.8	+0.9	−0.6	−0.9	−5.5	−4.1	+1.0	+0.8
Nebraska	+6.2	+7.9	+9.7	+6.8	−4.0	+1.6	+0.7	−1.4	−0.5	−1.2	−1.2	+4.5	+2.4
Nevada	+2.2	+0.4	+1.6	+4.7	+1.1	+1.9	+0.8	+2.3	+1.1	−3.5	−1.8	+4.9	+1.3
New England	−0.4	−2.3	+9.2	−1.3	−1.0	−0.6	−1.1	−2.3	+1.7	+3.4	+3.4	+1.1	+0.8
New Jersey	+1.8	+1.6	+8.5	+0.3	+0.2	−1.0	−0.7	−2.8	+1.6	+4.3	+4.4	+2.9	+1.8
New Mexico	−2.5	−0.6	+3.2	+5.3	−1.1	+1.9	+0.7	+0.6	+1.7	−0.1	−2.4	+4.7	+1.0
New York	+1.4	−0.4	+10.9	−0.3	−1.2	−1.1	−0.6	−2.7	+1.8	+4.5	+4.4	+2.6	+1.6
North Carolina	+1.2	+2.1	+6.4	+1.5	−0.7	−1.0	−1.4	−2.5	−1.4	+0.8	+5.2	+3.7	+1.2
North Dakota	+4.3	+0.5	+10.8	+6.6	−2.9	+0.4	+1.6	−1.3	−0.5	−4.0	−1.4	−0.1	+1.2
Ohio	+2.5	+3.4	+11.4	+1.0	−1.7	−0.7	−1.0	−4.7	0.0	+4.0	+4.5	+3.8	+1.9
Oklahoma	+0.9	+6.0	+5.7	+4.6	−2.4	−0.6	+1.8	+0.7	−1.8	+1.9	−0.6	+5.7	+1.8
Oregon	+0.6	−0.6	−0.1	+0.5	+0.7	−1.6	−1.0	+0.3	−1.2	−5.4	−2.7	+2.6	−0.6
Pennsylvania	+1.0	+0.9	+9.3	−0.9	−1.4	−2.4	−1.5	−3.3	+0.1	+3.4	+3.3	+2.3	+0.9
South Carolina	+1.0	+1.2	+5.3	+1.4	−1.1	−1.1	−1.7	−1.9	−1.7	+0.2	+5.2	+3.8	+0.9
South Dakota	+5.5	+5.8	+10.8	+6.9	−3.4	+0.4	+0.8	−2.4	−1.1	−3.5	−1.0	+2.5	+1.8
Tennessee	+1.0	+2.9	+7.8	+3.3	−1.9	−0.9	+0.1	−3.1	−1.7	+0.7	+5.4	+4.5	+1.5
Texas	−1.9	+1.7	+2.6	+3.5	−0.6	−1.4	+0.8	+0.7	−0.8	+1.7	+0.4	+3.7	+0.9
Utah	−1.5	−0.3	+2.0	+4.3	−1.1	+1.8	+1.3	+1.5	+0.7	−3.7	+2.0	+6.3	+1.1
Virginia	+1.1	+2.6	+6.4	+1.3	−1.0	−1.2	−2.0	−3.5	−0.7	+1.7	+4.7	+3.9	+1.1
Washington	+3.2	+1.8	0.0	−0.5	+2.5	−2.0	−0.4	+0.3	−0.7	−4.2	−3.5	+0.5	−0.2
West Virginia	+2.0	+2.5	+8.1	+1.4	−1.0	−0.8	−0.7	−4.3	+1.2	+2.5	+5.1	+3.6	+1.6
Wisconsin	+3.6	+1.7	+10.9	+3.8	−1.7	−0.9	−0.1	−1.4	−0.8	+3.9	+1.9	+2.5	+2.0
Wyoming	+3.0	+3.6	+6.5	+7.2	−2.8	+1.1	+2.2	+0.5	+0.5	−3.5	−0.6	+6.6	+2.0

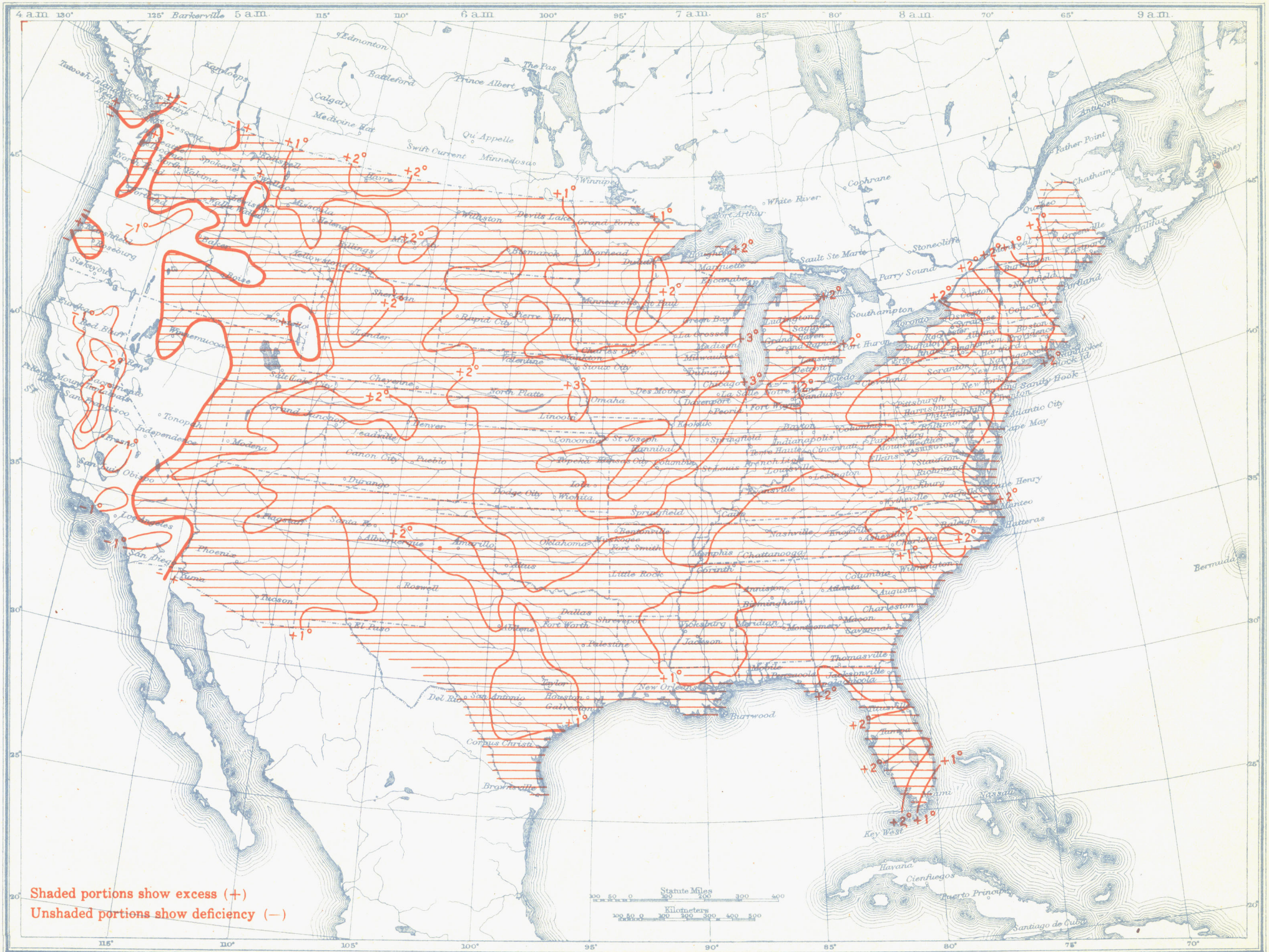
TABLE 2.—*Percentage of normal precipitation, 1946*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	170	123	137	68	191	128	126	104	186	52	155	55	124
Arizona	100	21	50	144	31	12	110	126	198	100	149	79	100
Arkansas	168	145	117	113	196	50	105	52	44	93	244	99	120
California	29	50	89	21	59	13	471	56	43	88	206	74	72
Colorado	62	33	105	79	116	60	100	129	69	159	310	45	102
Florida	101	83	135	43	194	101	123	97	104	66	130	37	104
Georgia	146	86	127	96	193	94	85	68	100	133	90	27	101
Idaho	92	102	123	69	99	90	109	102	122	181	163	111	114
Illinois	91	105	89	57	151	113	75	178	57	126	182	106	109
Indiana	49	127	84	48	152	106	79	98	41	100	123	106	92
Iowa	169	34	243	45	111	148	70	99	132	156	109	53	108
Kansas	180	77	153	65	90	81	59	95	133	224	205	64	105
Kentucky	90	148	95	53	140	101	103	118	87	92	101	84	101
Louisiana	182	127	166	67	252	148	140	78	107	60	166	66	127
Maryland-Delaware	50	76	68	56	173	108	90	101	97	91	55	67	91
Michigan	112	95	90	39	110	110	57	80	87	77	103	129	90
Minnesota	80	136	157	51	98	143	74	58	173	202	118	109	111
Mississippi	186	152	125	46	190	129	149	68	92	71	191	60	123
Missouri	127	134	88	86	146	58	75	148	56	108	243	112	109
Montana	83	77	101	46	92	90	156	82	171	240	147	147	114
Nebraska	50	28	203	28	124	88	69	79	179	298	246	26	109
Nevada	33	33	162	52	110	14	263	89	72	282	260	81	107
New England	88	92	42	79	150	90	86	167	100	62	57	111	94
New Jersey	48	61	83	41	179	136	125	95	87	41	44	67	87
New Mexico	131	22	104	50	58	36	84	143	107	142	148	49	92
New York	58	93	54	61	149	103	96	97	108	108	76	107	94
North Carolina	120	99	82	108	134	79	119	78	100	110	108	54	84
North Dakota	41	135	132	47	72	89	87	83	173	216	58	113	95
Ohio	34	124	92	50	155	153	81	74	48	124	101	93	95
Oklahoma	196	184	105	86	130	81	30	102	68	71	272	166	108
Oregon	99	95	112	50	89	111	107	85	83	161	130	83	104
Pennsylvania	42	79	91	34	189	146	94	93	95	110	43	74	94
South Carolina	117	76	97	115	122	55	110	91	61	166	123	35	94
South Dakota	25	107	189	68	156	134	83	82	279	289	113	73	133
Tennessee	176	133	100	69	130	69	100	82	116	100	141	89	109
Texas	193	120	119	96	145	107	57	136	145	118	191	85	123
Utah	79	33	121	128	160	16	87	144	30	382	223	144	126
Virginia	94	88	76	78	158	79	109	76	92	86	72	69	92
Washington	111	127	112	99	52	175	87	53	76	128	102	102	108
West Virginia	65	100	94	56	125	120	70	67	74	94	60	74	85
Wisconsin	142	64	102	33	81	162	51	69	122	107	127	109	97
Wyoming	67	63	119	48	155	118	72	106	150	207	100	88	109

TABLE 3.—*Monthly and annual precipitation (inches), 1946*

State	January	February	March	April	May	June	July	August	September	October	November	December	Annual
Alabama	8.42	6.58	7.98	3.02	7.47	5.52	6.99	4.87	6.08	1.42	4.97	2.74	66.06
Arizona	1.25	0.28	0.51	0.82	0.10	0.04	2.30	2.88	2.54	0.82	1.43	1.02	13.99
Arkansas	7.44	5.05	5.47	5.46	9.47	2.12	3.94	1.87	1.48	2.79	9.09	4.18	58.36
California	1.42	2.17	3.27	0.36	0.59	0.04	0.33	0.05	0.20	1.07	4.97	2.92	17.39
Colorado	0.49	0.32	1.36	1.40	2.13	0.84	2.20	2.52	0.94	1.80	2.39	0.40	16.79
Florida	2.81	2.58	4.26	1.22	7.76	6.78	9.05	6.76	6.93	2.74	2.76	1.04	54.69
Georgia	6.29	4.22	6.23	3.49	6.73	4.23	4.97	3.60	3.71	3.61	2.33	1.17	50.58
Idaho	2.04	1.78	2.22	1.00	1.58	1.21	0.70	0.61	1.25	2.62	3.38	2.29	20.68
Illinois	2.16	2.07	2.80	1.97	6.08	4.40	2.40	5.97	2.07	3.18	4.74	2.23	40.07
Indiana	1.57	3.09	3.11	1.72	6.06	4.12	2.62	3.31	1.35	2.71	3.74	2.87	36.27
Iowa	1.82	0.36	4.18	1.23	4.45	6.41	2.45	3.56	4.94	3.39	1.74	0.63	35.16
Kansas	1.24	0.77	2.21	1.64	3.44	3.16	1.85	2.97	3.66	4.22	2.56	0.57	28.29
Kentucky	4.02	5.23	4.47	2.13	5.50	4.16	4.23	4.42	2.52	2.38	3.45	3.19	45.70
Louisiana	8.85	5.72	7.68	3.21	11.25	7.23	8.52	4.02	4.08	1.94	6.45	3.54	71.49
Maryland-Delaware	1.69	3.70	2.51	1.98	6.48	4.17	4.00	4.44	3.33	2.75	1.41	2.20	38.66
Michigan	2.28	1.68	1.85	0.92	3.50	3.40	1.54	2.23	2.74	2.06	2.61	2.62	27.43
Minnesota	0.64	1.03	1.82	1.09	3.10	5.71	2.42	1.84	4.78	3.68	1.37	0.83	28.31
Mississippi	9.62	7.49	7.07	2.27	8.12	5.59	7.54	2.85	2.82	1.83	6.93	3.18	65.31
Missouri	3.12	2.81	2.82	3.37	6.88	2.72	2.68	5.64	2.25	3.02	6.44	2.44	44.19
Montana	0.72	0.55	0.95	0.52	1.90	2.30	2.02	0.87	2.21	2.45	1.50	1.40	17.42
Nebraska	0.26	0.20	2.23	0.67	4.10	3.11	2.03	2.20	3.64	4.11	1.82	0.18	24.55
Nevada	0.40	0.35	1.57	0.40	0.92	0.07	1.00	0.42	0.31	1.69	1.77	0.80	9.70
New England	3.13	2.96	1.53	2.68	5.00	3.09	3.22	6.39	3.79	2.17	2.02	3.73	39.71
New Jersey	1.76	2.16	3.17	1.51	6.63	5.25	5.91	4.49	3.34	1.49	1.45	2.38	39.54
New Mexico	0.77	0.16	0.78	0.43	0.67	0.45	2.07	3.42	1.85	1.58	0.93	0.35	13.46
New York	1.75	2.55	1.65	1.84	5.11	3.77	3.76	3.65	3.79	3.52	2.31	3.16	36.86
North Carolina	4.56	3.98	3.45	3.89	5.48	3.73	7.06	4.38	3.91	3.60	2.86	2.06	48.96
North Dakota	0.20	0.66	0.99	0.67	1.60	3.06	2.17	1.62	2.52	2.23	0.35	0.53	16.60
Ohio	1.05	3.14	3.21	1.63	5.64	5.94	3.09	2.51	1.42	3.09	2.73	2.51	35.96
Oklahoma	2.82	2.52	2.21	2.85	5.92	3.00	0.84	3.06	2.08	2.03	5.42	2.81	35.56
Oregon	4.01	3.01	3.20	1.01	1.53	1.42	0.46	0.34	1.00	3.20	4.84	3.23	27.25
Pennsylvania	1.36	2.33	3.18	1.19	7.25	6.05	4.05	3.87	3.29	3.50	1.26	2.30	39.63
South Carolina	4.21	3.22	3.73	3.71	4.37	2.64	6.37	5.22	2.44	4.84	2.82	1.26	44.83
South Dakota	0.14	0.01	2.06	1.40	4.38	4.45	2.06	1.80	4.13	3.24	0.70	0.38	25.35
Tennessee	8.46	5.82	5.40	3.04	5.42	2.88	4.48	3.33	3.50	2.76	5.02	4.03	54.14
Texas	3.65	2.18	2.42	2.83	5.31	3.34	1.50	3.27	4.30	3.00	4.34	1.96	38.10
Utah	0.96	0.42	1.68	1.48	1.82	0.09	0.76	1.41	0.30	4.09	2.19	1.60	16.80
Virginia	3.10	2.77	2.82	2.64	6.16	3.30	5.08	3.43	2.98	2.62	1.76	2.13	38.79
Washington	5.50	4.68	3.79	2.37	1.02	3.05	0.65	0.42	1.37	3.82	5.22	5.57	37.46
West Virginia	2.38	3.23	3.62	1.99	5.11	5.27	3.20	2.75	2.27	2.67	1.67	2.44	36.60
Wisconsin	2.01	0.83	1.84	0.83	2.85	6.43	1.76	2.29	4.41	2.63	2.40	1.41	29.69
Wyoming	0.54	0.49	1.34	0.75	3.13	1.85	0.97	1.15	1.67	2.24	0.74	0.65	15.52

Annual Temperature Departures (°F.) in the United States, 1946



Percentage of Normal Annual Precipitation in the United States, 1946